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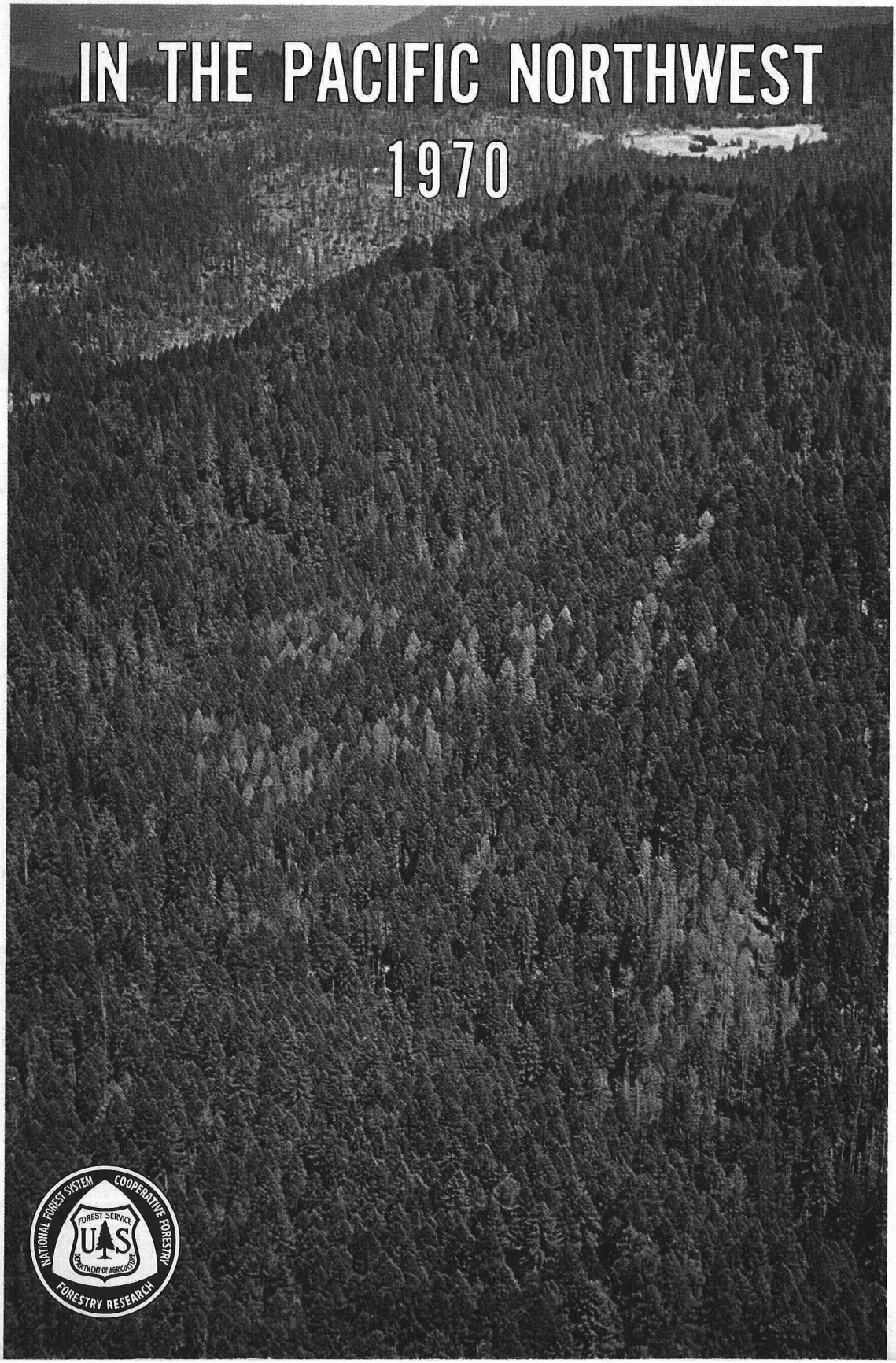
Forest Pest Conditions



This is the 23rd annual report of forest pest conditions in Oregon and Washington based on cooperative surveys sponsored by the Northwest Forest Pest Action Council. The combined efforts of many organizations and individuals made these surveys possible. Special acknowledgment is made to the principal cooperators, Oregon State Department of Forestry and Washington State Department of Natural Resources.

COVER BACKGROUND: Aerial photo showing trees killed by the Douglas-fir beetle.

FOREST PEST CONDITIONS IN THE PACIFIC NORTHWEST

1970

BY

R. E. DOLPH

AND

L. F. PETTINGER

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INSECT AND DISEASE CONTROL BRANCH
DIVISION OF TIMBER MANAGEMENT
PACIFIC NORTHWEST REGION
FOREST SERVICE
U.S. DEPARTMENT OF AGRICULTURE

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INTRODUCTION

Forest pest infestations were detected and recorded by aerial and ground surveys made in cooperation with the Oregon State Department of Forestry and the Washington Department of Natural Resources. Ground surveys were made to verify aerial survey findings, detect low-level populations, and to evaluate stand conditions and insect population trends.

The volume of timber killed by bark beetles, except for Oregon pine ips, was estimated from counts of dead trees during the aerial survey. Volume lost to defoliators, sucking insects, and Oregon pine ips was not estimated.

Timber losses due to bears, dying hemlock, storms, and some diseases are reported. The extent of insect outbreaks is summarized in Table 1. Infestations are recorded by volume losses by land ownership and classification in Tables 2 and 3.

CONDITIONS IN BRIEF

With few exceptions, forest insect infestations were little changed from last year. Mountain pine beetle, black-headed budworm, and western spruce budworm trends are upward. Douglas-fir beetle trend is downward.

Findings of both aerial and ground surveys are as follows:

1. *Douglas-fir beetle.*—Over 7.23 million board feet of timber was killed on 36,140 acres.
2. *Engelmann spruce beetle.*—Outbreaks decreased in Washington but increased in Oregon. In both States, 2.68 million board feet of timber was killed on 12,230 acres.
3. *Fir engraver.*—Infestations are static with a loss of 138.12 million board feet.
4. *Mountain pine beetle.*—The infestation was upward on lodgepole pine but static to downward in other pines—1.04 billion board feet of timber was killed on 428,470 acres.
5. *Western pine beetle.*—The trend is upward in Oregon and downward in Washington. An estimated 5.29 million board feet was killed on 75,030 acres.
6. *Silver fir beetles.*—No infestations found in Oregon. In Washington, 39.54 million board feet of Pacific silver fir was killed on 10,040 acres.
7. *Oregon pine ips.*—The trend was slightly upward with most problems occurring in Oregon.
8. *Larch casebearer.*—The infestations continued to spread and were found for the first time in northeast Oregon this year.
9. *Black-headed budworm.*—The population trend is sharply upward in Washington. No defoliation was noted in Oregon.
10. *Western spruce budworm.*—A definite upward trend occurred in both States.
11. *Larch budmoth.*—Continued to be a minor problem in limited areas in Washington.
12. *Sawflies.*—Small isolated infestations caused defoliation of western larch and true firs in Oregon.

13. *Pandora moth.*—Some 5,000 acres of lodgepole and ponderosa pine were defoliated in Oregon.

14. *Needle miners.*—Outbreaks in lodgepole pine and ponderosa pine subsided.

15. *Balsam woolly aphid.*—A slight increase of damage was reported in the true fir stands in the Cascade Mountains. The outbreak on the Olympic Peninsula intensified.

16. *Douglas-fir tussock moth.*—A few larvae were found in northeast Oregon indicating an upward trend.

Table 1.—Summary of forest insect infestations in Oregon and Washington during 1969 and 1970
(In acres)

Insects[1]	Oregon		Washington		Regional total	
	1969	1970	1969	1970	1969	1970
Bark beetles:						
Douglas-fir beetle (westside)	20,120	6,030	39,070	3,670	59,190	9,700
Douglas-fir beetle (eastside)	14,220	2,870	42,070	23,570	56,290	26,440
Engelmann spruce beetle	1,280	3,390	24,660	8,840	25,940	12,230
Fir engraver	316,920	301,920	41,150	97,870	358,070	399,790
Mountain pine beetle (L)	184,210	251,320	1,990	1,960	186,200	253,280
Mountain pine beetle (S)	40	180	0	0	40	180
Mountain pine beetle (W)	101,360	98,100	48,040	18,610	149,400	116,710
Mountain pine beetle (P)	55,640	53,620	12,930	4,680	68,570	58,300
Oregon pine ips	21,780	17,500	110	1,900	21,890	19,400
Western pine beetle	45,250	73,980	14,250	1,050	59,500	75,030
Silver fir beetles	0	0	5,010	10,040	5,010	10,040
All bark beetles	760,820	808,910	229,280	172,190	990,100	981,100
Defoliators:						
Larch sawfly	0	1,910	0	0	0	1,910
Sawflies on true firs	0	1,680	0	0	0	1,680
Sawflies on knobcone pine	7,690	0	0	0	7,690	0
Larch budmoth	0	0	12,160	10,580	12,160	10,580
Western hemlock looper	0	0	750	0	750	0
Spruce budworm	0	13,780	0	240	0	14,020
Black-headed budworm	0	0	0	63,840	0	63,840
Pandora moth	0	5,120	0	0	0	5,120
Needle miner on lodgepole pine	70,500	600	0	0	70,500	600
All defoliators	78,190	23,090	12,910	74,660	91,100	97,750
Sucking insects:						
Balsam woolly aphid	128,130	179,540	24,540	24,170	152,670	203,710
Spruce aphid	0	0	280	4,690	280	4,690
All sucking insects	128,130	179,540	24,820	28,860	152,950	208,400
All insects	967,140	1,011,540	267,010	275,710	1,234,150	1,287,250

[1] Mountain pine beetle infestations are separated by tree species L, lodgepole pine; S, sugar pine; W, western white pine; P, ponderosa pine.

MAJOR BARK BEETLE PROBLEMS

DOUGLAS-FIR BEETLE, *Dendroctonus pseudotsugae* Hopk.

Outbreaks subsided in most areas of Oregon and Washington. In western Washington, the severe losses of last year in the Wind, Lewis, and Little White Salmon River drainages on the Gifford Pinchot National Forest subsided to only scattered tree killing. Elsewhere in western Washington, small groups of tree killing occurred on the Mt. Baker National Forest and the Olympic National Park. In western Oregon the most significant losses occurred on the Umpqua National Forest.

Moderate losses occurred in Douglas-fir stands east of the Cascade Mountains. Most of this damage was on the Okanogan and Colville National Forests and the Colville Indian Reservation in Washington and the Wallowa-Whitman National Forest in Oregon.

During January 1970, a freezing rain occurred in the Columbia River Gorge. Damage to forest trees was severe as a result of accumulations of up to 1½ inches of ice. In the Little White Salmon River drainage in Washington and the Hood River drainage in Oregon, several thousand acres of timber received heavy damage. Ground surveys this past summer have shown large numbers of beetles being produced in the storm damaged trees and debris. Salvage of much of the material will lessen population buildups. However, much of the damaged timber is below merchantable size, in restricted logging zones, and in inoperable areas.

The outlook is for continued population buildups in the storm debris during 1971. By 1972 extensive killing of standing trees may occur in these areas.

ENGELMANN SPRUCE BEETLE, *Dendroctonus rufipennis* (Kirby)

Outbreaks increased slightly in Oregon and decreased in Washington. In Oregon, most damage occurred on the Wallowa-Whitman National Forest. In Washington, most severe losses occurred on the Okanogan and Wenatchee National Forests.

About 2.6 million board feet of timber was killed. Much of the loss, however, occurred on inaccessible or dedicated lands; hence, salvage will be minimal.

Figure 1.—A young stand of Douglas-fir severely damaged by ice in January 1970. Distressed timber such as this provides ideal breeding sites for destructive beetles.

FIR ENGRAVER, *Scolytus ventralis* LeC.

Heavy losses are still occurring from this beetle. Overall losses in 1970 were slightly higher than last year. The estimated loss for this year is over 1.38 million board feet.

The majority of the losses in Oregon occurred in the Blue Mountains on the Wallowa-Whitman and Umatilla National Forests. In Washington, the heaviest infestations were near Mt. Spokane on the Northeast Washington District and on the Colville National Forest.

MOUNTAIN PINE BEETLE, *Dendroctonus ponderosae* Hopk.

This beetle caused severe losses in many pine forests in the Pacific Northwest.

In lodgepole pine stands outbreaks increased sharply in Oregon but remained static in Washington. The most severe and extensive outbreaks in Oregon occurred on the Deschutes, Fremont, Malheur, Umatilla, Wallowa-Whitman and Winema National Forests. These outbreaks are in predominantly overmature stands and are likely to continue for the next several years. For the second consecutive year tree killing in Washington occurred on less than 2,000 acres. The only significant infestation was located on the Colville National Forest. Commercial sales are planned to log as much of the infested timber as economically possible to protect adjacent uninfested stands. In addition, surveys are in progress to identify susceptible stands, plan advance roading, and set priorities for early harvest before the beetles attack.

This beetle continues to infest many western white pine stands in the Cascade Mountains. Regionwide, an estimated 350 million board feet was killed. Nearly 71 percent of this loss was on dedicated lands, primarily wilderness areas and National Parks. In Oregon, the estimated timber loss totaled 344 million board feet, with most of it occurring on the Willamette, Mt. Hood, and Umpqua National Forests. In Washington, the estimated loss of 6 million board feet was more widely scattered with most of the mortality concentrated on the Wenatchee and Snoqualmie National Forests and on the Yakima Indian Reservation.

Infestations in pole-size ponderosa pine stands continued to decrease in both States. In Washington, outbreaks occurred on less than 5,000 acres. Volume estimates of losses were slightly less than 250 thousand board feet. The heaviest damages were on the Okanogan and Wenatchee National Forests. Significant ponderosa pine losses occurred in Oregon. Infestations on some 54,000 acres killed an estimated 7.6 million board feet of timber. The greatest concentration of mortality was on the Wallowa-Whitman, Deschutes and Fremont National Forests.

Figure 2.—Interpreting a color negative in the field to locate areas of lodgepole pine infested with mountain pine beetle.

WESTERN PINE BEETLE, *Dendroctonus brevicomis* LeC.

Losses from this bark beetle in mature ponderosa pine stands increased in Oregon but decreased in Washington. Nearly 5.3 million board feet of timber was killed in both States. Heaviest losses occurred on the Ochoco and Deschutes National Forests in Oregon. Most damage in Washington was found on the Okanogan National Forest and on the Yakima Indian Reservation.

OREGON PINE IPS, *Ips pini* (Say)

The amount of damage caused by this insect was little changed from last year. Overall losses were minor and widely scattered. Most eastside Forests received some damage. Reporting areas with the most damage were Fremont, Malheur, Umatilla, and Wallowa-Whitman National Forests in Oregon.

SILVER FIR BEETLES, *Pseudohylesinus* spp.

All losses to these insects were found in Washington where the damage increased from last year. Over 39.5 million board feet of true firs were killed on the Mt. Baker and Olympic National Forests and the Olympic and North Cascades National Parks.

Table 2.—Summary of 1970 infestations in Oregon and Washington for all bark beetle damage excluding Oregon pine ips

Insect[1]	National Forest lands[2]		Forest lands other than National Forest[3]		Dedicated forest lands (Wild. areas & National Parks)[4]		All forest lands	
	Area Acres	*Volume Board feet*	*Area Acres*	*Volume Board feet*	*Area Acres*	*Volume Board feet*	*Area Acres*	*Volume Board feet*
Oregon:								
Douglas-fir beetle (westside)	4,020	1,328,330	2,010	462,140	0	0	6,030	1,790,470
Douglas-fir beetle (eastside)	2,640	391,530	180	26,460	50	3,240	2,870	421,230
Engelmann spruce beetle	2,920	405,500	0	0	470	27,770	3,390	433,270
Fir engraver	147,380	54,409,060	153,080	62,960,100	1,460	844,400	301,920	118,213,560
Mountain pine beetle (L)	201,390	584,091,860	42,690	88,584,480	7,240	3,796,350	251,320	676,472,690
Mountain pine beetle (S)	30	3,950	150	11,850	0	0	180	15,800
Mountain pine beetle (W)	54,840	100,340,600	1,300	298,650	41,960	243,297,900	98,100	343,937,150
Mountain pine beetle (P)	30,730	4,969,750	22,890	2,627,820	0	0	53,620	7,597,570
Western pine beetle	53,730	4,237,970	20,250	910,700	0	0	73,980	5,148,670
Oregon total	497,680	750,178,550	242,550	155,882,200	51,180	247,969,660	791,410	1,154,030,410
Washington:								
Douglas-fir beetle (westside)	2,100	717,230	690	100,040	880	453,000	3,670	1,270,270
Douglas-fir beetle (eastside)	12,680	1,420,350	10,570	2,296,600	320	36,300	23,570	3,753,250
Engelmann spruce beetle	4,190	880,750	920	780,000	3,730	587,500	8,840	2,248,250
Fir engraver	59,400	10,032,450	37,300	9,827,900	1,170	45,750	97,870	19,906,100
Mountain pine beetle (L)	260	33,960	1,700	2,484,250	0	0	1,960	2,518,210
Mountain pine beetle (W)	11,150	3,286,700	6,670	2,360,870	790	190,500	18,610	5,838,070
Mountain pine beetle (P)	600	96,350	4,080	149,820	0	0	4,680	246,170
Western pine beetle	620	110,550	430	36,740	0	0	1,050	147,290
Silver fir beetles	6,410	32,723,000	0	0	3,630	6,816,250	10,040	39,539,250
Washington total	97,410	49,301,340	62,360	18,036,220	10,520	8,129,300	170,290	75,466,860
Regional total	595,090	799,479,890	304,910	173,918,420	61,700	256,098,960	961,700	1,229,497,270

[1] Mountain pine beetle infestations are separated by tree species. L, lodgepole pine; S, sugar pine; W, western white pine; P, ponderosa pine.

[2] Excluding Wilderness areas. The volume that will be salvaged depends upon land use classification, accessibility, and other conditions.

[3] Includes all forested lands not within the boundaries of National Forests or National Parks.

[4] Includes only Wilderness areas of the National Forest system and National Parks.

MAJOR DEFOLIATOR PROBLEMS

LARCH CASEBEARER, *Coleophora laricella* (Hübner)

The larch casebearer infestation continues to spread. The insect was found for the first time in northeast Oregon. On the Umatilla National Forest in southeast Washington, where it was first found at very low populations in 1967, populations are now high enough to cause light to moderate defoliation.

No detailed aerial survey was made because infestations can be found in almost all natural stands of larch. More effort was placed on ground surveys to detect spread of the moth and evaluate the damage. With few exceptions, all larch stands from north central Washington to the Idaho border are now infested. In addition, considerable spread has occurred in the Blue Mountains of southeast Washington and northeast Oregon.

A survey in northeast Washington for both native parasites and the introduced parasite, *Agathis pumila* (Ratz.), found native parasitism to be as high as 20 percent. Native parasitism was highest where the casebearer has been present for several years. A survey of eight sites where *Agathis pumila* was released showed the parasite was present on six of the sites but the degree of parasitism was very low—generally less than one percent.

BLACK-HEADED BUDWORM, *Acleris gloverana* (Wals.)

A sharp increase in black-headed budworm populations occurred in western Washington. On the Olympic Peninsula, nearly 60,000 acres of western hemlock was affected. Defoliation ranged from light to heavy. On the Mt. Baker National Forest, over 8,000 acres was lightly defoliated. Egg surveys have not yet been made but preliminary observations indicate the population is increasing.

No defoliation was found in Oregon.

WESTERN SPRUCE BUDWORM *Choristoneura occidentalis* Free.
(Formerly spruce budworm, *C. fumiferana* (Clem.))

After several years of little activity this important defoliator again appears to be on the increase.

In the Imnaha River drainage on the Wallowa-Whitman National Forest, Oregon, over 13,000 acres of Douglas-fir and true firs were lightly to moderately defoliated. On the Okanogan National Forest in Washington, light defoliation occurred on 240 acres of Douglas-fir and true firs.

Subepidemic populations of budworm larvae were found at several localities throughout eastern Oregon and Washington. Ground surveys indicate the populations will increase next year.

LARCH BUDMOTH, *Zieraphera improbana* (Walker)

Light to moderate defoliation of western larch continued for the third year on the Tieton and Naches Ranger Districts of the Snoqualmie National Forest in Washington. Past infestations on the Wenatchee National Forest have subsided without causing any appreciable damage.

MAJOR SUCKING INSECT PROBLEMS

BALSAM WOOLLY APHID, *Adelges piceae* (Ratz.)

Outbreaks of this pest on true firs were slightly higher this year. In Oregon, where most of the increases occurred, heaviest losses were found on the Mt. Hood, Umpqua, and Willamette National Forests. Heaviest losses in Washington were centered on the Gifford Pinchot, Snoqualmie, and Olympic National Forests and the Mt. Rainier National Park. The outbreak detected on the Olympic National Forest in 1969 is spreading rapidly but has not yet reached the Olympic National Park. Losses in Pacific silver fir near Mt. St. Helens on the Gifford Pinchot National Forest are again increasing after several years.

SPRUCE APHID, *Elatobium abietinum* (Wlkr.)

Light to moderate defoliation of Sitka spruce occurred at widely scattered localities along the Washington coast. Outbreaks of this insect usually subside without causing lasting damage.

Table 3.—Summary of 1970 infestations for all defoliators, sucking insects, and Oregon pine ips in Oregon and Washington

Insect	National Forest lands[1]	Forest lands other than National Forest[2]	Dedicated forest lands (Wild. areas & National Parks)[3]	All forest lands
	Area Acres	*Area Acres*	*Area Acres*	*Area Acres*
Oregon:				
Larch sawfly	0	1,790	120	1,910
Sawflies on true firs	820	40	820	1,680
Spruce budworm	13,780	0	0	13,780
Pandora moth	5,120	0	0	5,120
Needle miner on lodgepole pine	600	0	0	600
Balsam woolly aphid	93,110	14,400	72,030	179,540
Oregon pine ips	6,780	10,540	180	17,500
Oregon total	120,210	26,770	73,150	220,130
Washington:				
Black-headed budworm	28,860	2,520	32,460	63,840
Spruce budworm	240	0	0	240
Larch budmoth	7,960	2,620	0	10,580
Balsam woolly aphid	17,750	2,680	3,740	24,170
Spruce aphid	680	110	3,900	4,690
Oregon pine ips	70	1,830	0	1,900
Washington total	55,560	9,760	40,100	105,420
Regional total	175,770	36,530	113,250	325,550

[1] Excluding Wilderness areas.
[2] Includes all forested lands not within the boundaries of National Forests or National Parks.
[3] Includes only Wilderness areas of the National Forest system and National Parks.

OTHER FOREST PEST PROBLEMS

The following insects caused varying degrees of damage to forest and shade trees. They are of a more general interest and are listed as a record since they could become a threat to forest resources. Most of this information has been compiled from reports supplied by the States' agricultural entomologists and extension officers.

EUROPEAN PINE SHOOT MOTH, *Rhyacionia buoliana* (Schiff.)

In Oregon no new infestations were found outside the known infested communities. Experimental tests of the insecticide, Guthion, were made against the insect at McNary Dam this past summer. The final analysis of the results has not been made, but preliminary indications are that Guthion gives adequate control of the insect in ornamental pines.

New infestations were found in Washington at Centralia, Chehalis, and again at Spokane. The infestation at Spokane, where six trees were found at two residences, was traced back to infested trees shipped from a Seattle nursery last year in violation of quarantines.

LARCH SAWFLY, *Pristiphora erichsonii* (Hartig)

Light defoliation resulted on nearly 2,000 acres of western larch on the Mt. Hood National Forest and the Warm Springs Indian Reservation in Oregon.

SAWFLY ON KNOBCONE PINE, *Neodiprion* sp.

An unidentified species has for the second year caused light defoliation of knobcone pine on nearly 2,000 acres on the Siskiyou National Forest in southwestern Oregon. No control is planned.

NEEDLE MINER, *Coleotechnites* near *Milleri*

The severe defoliation caused by this insect in the ponderosa pine and lodgepole pine stands in the upper Deschutes basin in Oregon has subsided. This year only 600 acres of light to moderate defoliation of lodgepole pine was recorded on the Deschutes National Forest.

DOUGLAS-FIR TUSSOCK MOTH, *Hemerocampa pseudotsugata* McD.

Several larvae were found near Flora in northeast Oregon but no significant defoliation was found. The area will be watched closely for population increases.

WESTERN HEMLOCK LOOPER, *Lambdina fiscellaria lugubrosa* (Hulst)

Larvae were more numerous in survey collections along the Washington coast, but no significant defoliation occurred.

TREES DAMAGED BY BEARS

Tree damage and killing caused by bears increased in both States. The seriousness of the problem is compounded by the bears' preference to attack young trees in stands already understocked. This year it was noted for the first time root rots and bear-damaged trees are occurring in the same areas. The significance and the reason for this occurrence is not fully understood.

Most severe damage in Oregon was found in the Northwest Oregon District. In Washington, heaviest damage occurred on the Olympic Peninsula and the Southwest Washington District.

PANDORA MOTH, *Coloradia pandora* Blake

Light to heavy defoliation occurred on over 5,000 acres of ponderosa and lodgepole pine on the Deschutes National Forest in Oregon. Population counts indicate 2-7 pupae per square foot. Many caterpillars were apparently killed by a wilt disease. In addition, many mature larvae were observed parasitized by a small braconid wasp, *Apanteles* sp. Control not necessary. This population of the pandora moth is out of phase with the one on the Winema National Forest where moths emerged this summer.

Some defoliation by the first year larvae is expected on the Winema National Forest in 1971.

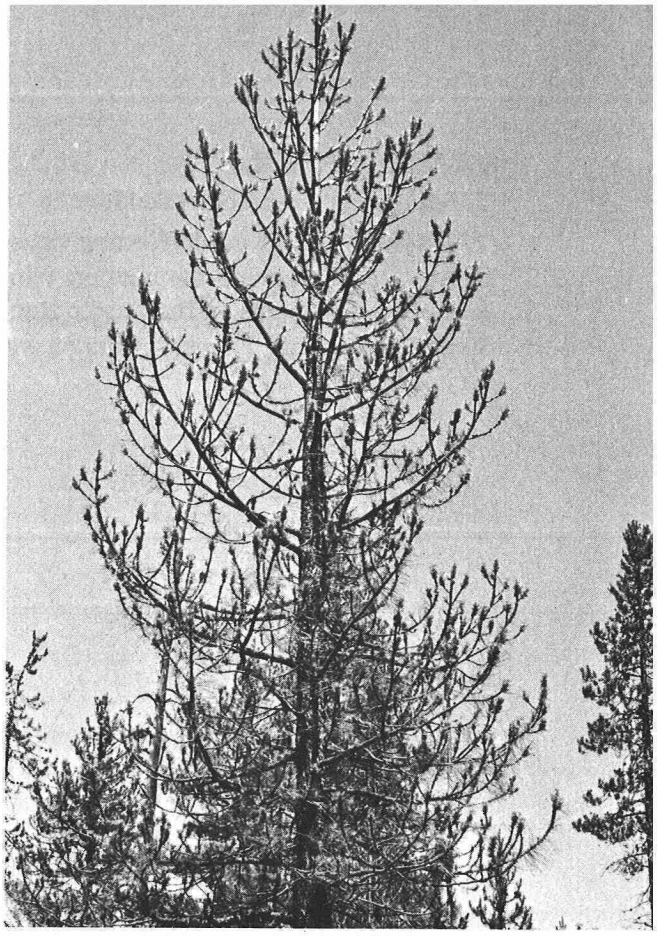
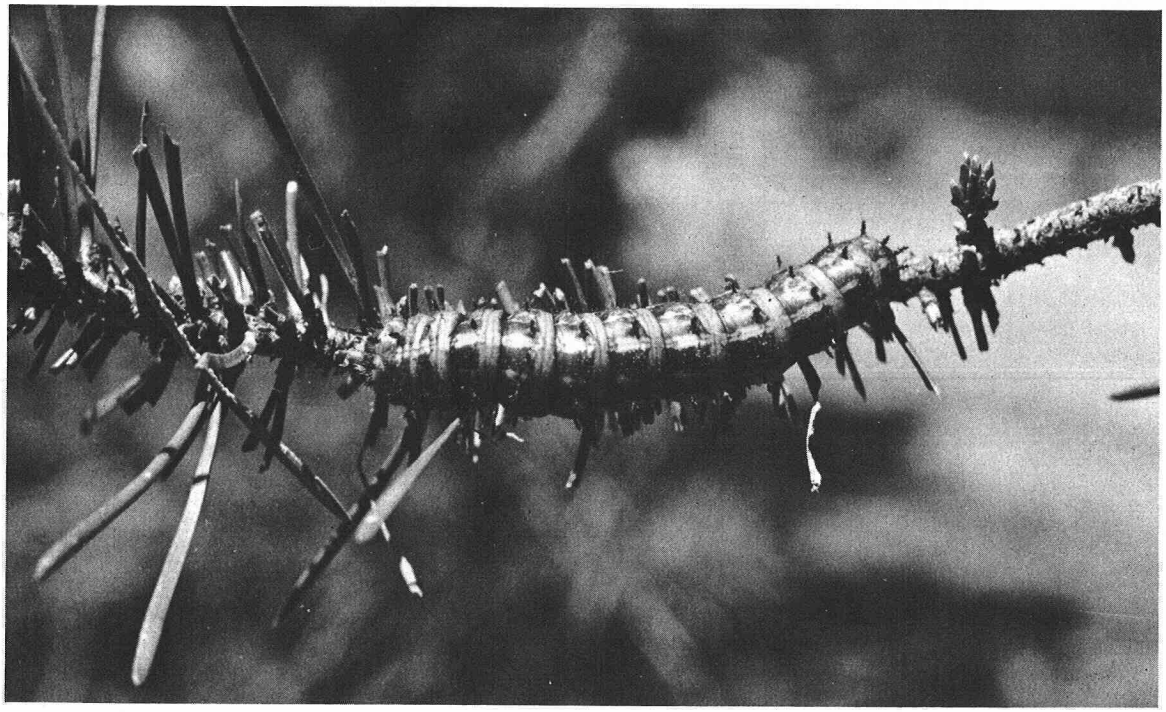


Figure 3.—A lodgepole pine defoliated by the pandora moth, Deschutes National Forest, Oregon.

Figure 4.—A pandora moth larva feeding on lodgepole pine needles.



GRASSHOPPER,

Melanoplus devastator Scudder

Nymphal and adult feeding caused some defoliation and terminal damage on two Douglas-fir seed production sites on the Chetco Ranger District, Siskiyou National Forest. Control may be necessary in 1971.

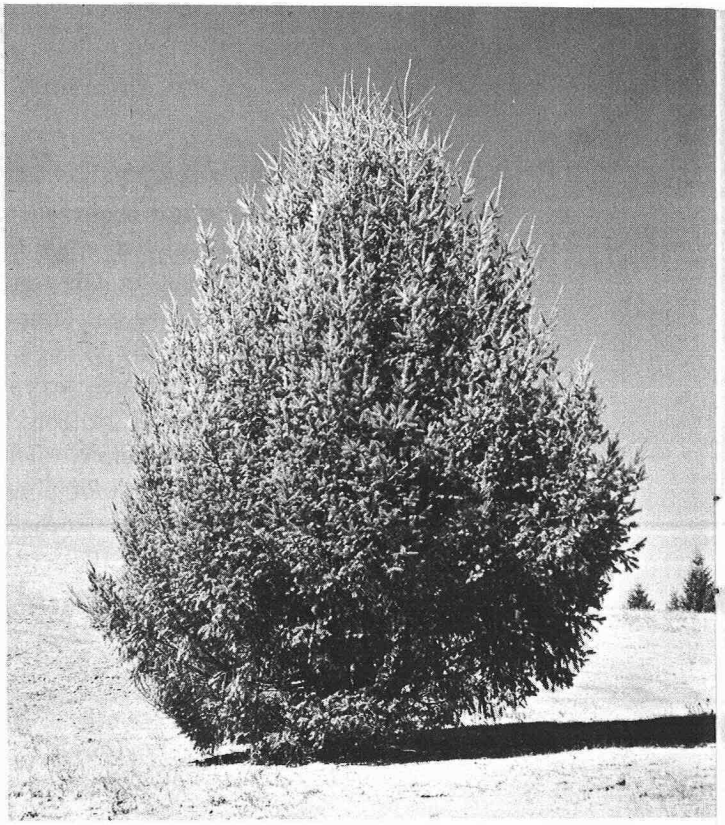


Figure 5.—Grasshopper damage on an open-grown Douglas-fir, Siskiyou National Forest, Oregon.

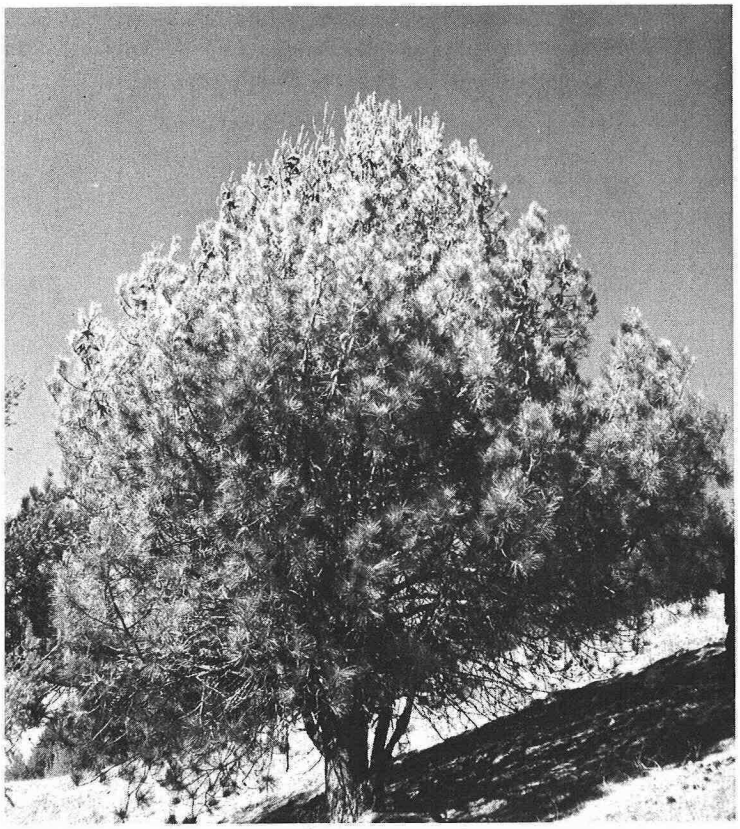


Figure 6.—Grasshopper damage on knobcone pine, Siskiyou National Forest, Oregon.

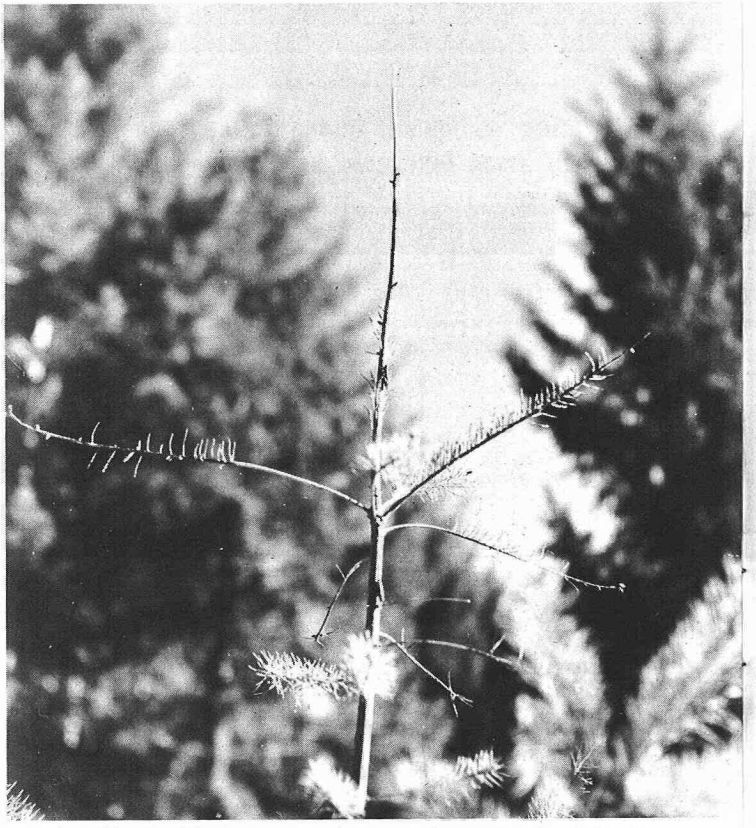


Figure 7.—Grasshoppers defoliating the terminal of a young Douglas-fir, Siskiyou National Forest, Oregon.

ALDER FLEA BEETLE, *Altica ambiens* LeC.

Above normal populations of this insect severely defoliated and killed some twigs of alders, *Alnus* spp., particularly along drainages in Jackson, Grant, Union, and Umatilla Counties, Oregon.

WESTERN TENT CATERPILLAR, *Malacosoma californicum pluviale* (Dyar)

This caterpillar was observed in several alder stands in northwest Oregon. The damage was classified as light.

THE ELM LEAF BEETLE, *Pyrrhalta luteola* (Müller)

This beetle severely skeletonized the leaves of several elm trees in the Wapinitia area, Wasco County, Oregon causing premature leaf drop.

A SAWFLY, *Xyela* sp. (Family Xyelidae)

Larvae dropped in great numbers from ponderosa pine staminate flowers. Reported primarily from Baker and Union Counties, Oregon.

WESTERN PINE SPITTLEBUG, *Aphrophora permutata* Uhler

Adults were numerous on young ponderosa pine near Medford, Oregon. Another infestation was located on the coast in Lincoln County, Oregon on coast pine, *Pinus contorta.*

PINE NEEDLE-SHEATH MINER, *Zelleria haimbachi* Busck

Activity was reported on young ponderosa pines near Medford, Oregon and on several different pine species in a nursery at Gresham, Oregon.

SILVER-SPOTTED TIGER MOTH, *Halisidota argentata* Pack.

Larval feeding caused some light defoliation of coast pine, *Pinus contorta,* at Newport and Boring, Oregon.

SPRUCE BUD SCALE, *Physokermes piceae* (Schrank)

Attacked twigs on several Engelmann spruce trees in Ashland, Oregon. Numerous adults were found under bud scales.

ZIMMERMAN PINE MOTH, *Dioryctria zimmermani* (Grote)

This moth was prevalent on ornamental ponderosa pines this year in the Portland, Oregon area. The mild winter favored development of this pest.

PONDEROSA PINE RESIN MIDGE, *Cecidomyia piniinopsis* O.S.

This midge was quite prevalent near Bandon, Oregon where it caused twig deformation and dieback in a Christmas tree plantation of coast pine, *Pinus contorta* Dougl. Another infestation center was located on coast pine in Portland where 90 percent of last year's terminals were infected.

A PINE SCALE, *Matsucoccus* sp.

Moderately infested about 30 percent of 5,000 Scotch pine seedlings near Silverton, Oregon. All plants were treated by dipping into malathion.

FALL WEBWORM, *Hyphantria cunea* (Drury)

Tents moderately abundant on alder, cottonwood and ash in the Columbia River Gorge between Portland and Hood River, Oregon. Infestations were also heavy to severe on deciduous trees in metropolitan Portland, Oregon. Numerous tents were observed in Washington between Vancouver and White Salmon.

DYING HEMLOCK

The continual problem of dying of old-growth western hemlock from unknown problems was lower this year. Problem areas occurred on the Mt. Baker and Olympic National Forests and the Olympic National Park in Washington. No problems were found in Oregon.

A NATIVE PINE SHOOT MOTH, *Eucosma sonomana* Kearf.

Limited ground surveys in the pine region have located several centers of a native shoot moth, *Eucosma sonomana* Kearf. Larvae of this moth mine the pith of terminal and lateral shoots, often damaging 50 percent or more of the trees in a stand. It can reduce height growth as much as 30 percent per year and often deforms the trees.

TWIG WEEVIL, *Cylindrocopturus* sp.

An apparently undescribed species of weevil caused minor twig killing on open-grown noble fir near Government Camp on the Mount Hood National Forest, Oregon.

THE CALIFORNIA TORTOISE SHELL BUTTERFLY, *Nymphalis californica* (Bdv.)

Larvae of this butterfly caused moderate to heavy defoliation of *Ceanothus velutinus,* snowbrush. This damage occurred on both sides of the Cascades from Bend, Oregon, south to the Oregon-California State line.

BLACK GRASS BUG, *Labops hesperius* Uhler

This bug caused severe losses to a grass-reseeded area in Baker County, Oregon. The area was treated with malathion after surveys showed nymphal populations of up to 10 individuals per sweep.

TENT CATERPILLAR, *Malacosoma californicum fragile,* Stretch

Bitterbrush, *Purshia tridentata,* on important deer winter ranges near Wamic and Chemult, Oregon was heavily defoliated.

CONE AND SEED INSECTS

The Douglas-fir cone crop in 1970 was light west of the Oregon and Washington Cascades. Many cones needed from specific seed zones or elevation bands were infested and severely damaged by Douglas-fir cone moth, *Barbara colfaxiana.* As a result of *Barbara* activity, Douglas-fir scale midge, *Contarinia oregonensis,* and Douglas-fir scale midge, *Contarinia washingtonensis,* populations were curtailed. Any remaining viable seeds in *Barbara*-infested cones were attacked by Douglas-fir seed chalcid *Megastigmus spermotrophus.* Fir cone worm, *Dioryctria albovittella,* attacks this year were light and scattered.

WINTER DAMAGE

This summer a variety of bark beetles attacked trees severely damaged during the winter of 1968-69 in the Hood River drainage, Hood River Ranger District, Mount Hood National Forest. The most numerous beetles by host were: Douglas-fir beetle, *Dendroctonus pseudotsugae* Hopk., on Douglas-fir; mountain pine beetle, *Dendroctonus ponderosae* Hopk., on western white pine; fir engraver, *Scolytus ventralis* LeC., on white, grand and noble firs; ambrosia beetles, *Trypodendron lineatum* Oliver, and various wood borers on all tree species.

Figure 8.—Many trees weakened by low temperatures during 1968-69 winter were attacked by beetles in 1970. Ponderosa pine and western larch escaped beetle attacks.

DISEASES

Diseases continue their chronic damage to forest stands throughout the Northwest. Dwarf mistletoe and root rot are the worst offenders.

NEEDLE DISEASE OF PINES

The needle cast disease of ponderosa pine plantations in southern Oregon is still unnamed but has now been found in 33 plantations. Severity decreased in some areas but some mortality has occurred.

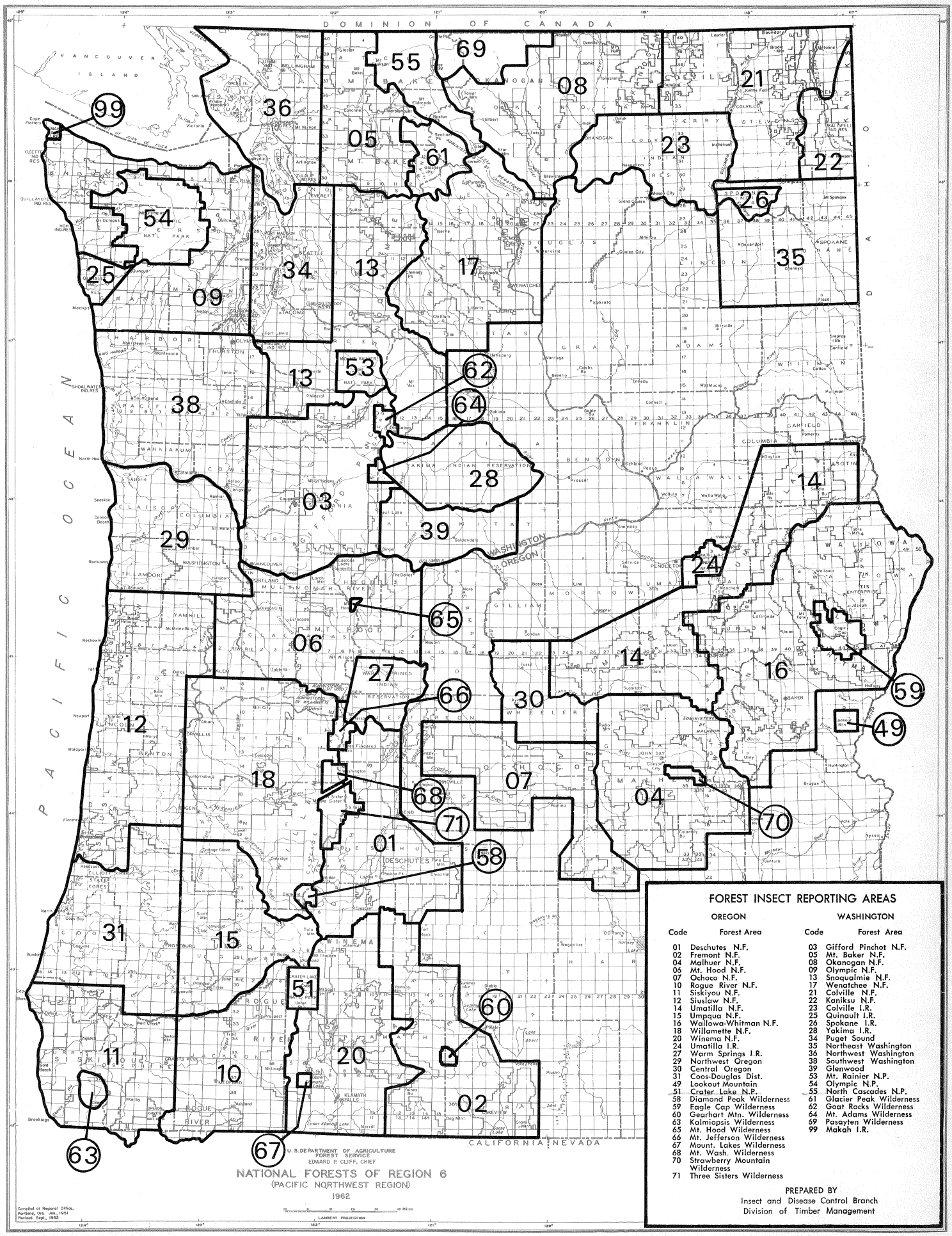
PORIA ROOT ROT

Poria weirii has become noticeably prevalent in many young Douglas-fir plantations, especially in western Oregon. Such damage in plantations as young as 10 years may portend serious losses during the course of a rotation.

ICE DAMAGE

The previously mentioned ice damage in the Columbia River Gorge will likely result in extensive cull at rotation age. Rot fungi which colonize broken tips will produce top rot in large trees and cull in basal logs of young trees.

GPO 998-366



U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
EDWARD P. CLIFF, CHIEF

NATIONAL FORESTS OF REGION 6
(PACIFIC NORTHWEST REGION)

1962

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Revised Sept., 1962

LAMBERT PROJECTION

FOREST INSECT REPORTING AREAS

OREGON

Code	Forest Area
01	Deschutes N.F.
02	Fremont N.F.
04	Malhuer N.F.
06	Mt. Hood N.F.
07	Ochoco N.F.
10	Rogue River N.F.
11	Siskiyou N.F.
12	Siuslaw N.F.
14	Umatilla N.F.
15	Umpqua N.F.
16	Wallowa-Whitman N.F.
18	Willamette N.F.
20	Winema N.F.
24	Umatilla I.R.
27	Warm Springs I.R.
29	Northwest Oregon
30	Central Oregon
31	Coos-Douglas Dist.
49	Lookout Mountain
51	Crater Lake N.P.
58	Diamond Peak Wilderness
59	Eagle Cap Wilderness
60	Gearhart Mtn. Wilderness
63	Kalmiopsis Wilderness
65	Mt. Hood Wilderness
66	Mt. Jefferson Wilderness
67	Mount Lakes Wilderness
68	Mt. Wash. Wilderness
70	Strawberry Mountain Wilderness
71	Three Sisters Wilderness

WASHINGTON

Code	Forest Area
03	Gifford Pinchot N.F.
05	Mt. Baker N.F.
08	Okanogan N.F.
09	Olympic N.F.
13	Snoqualmie N.F.
17	Wenatchee N.F.
21	Colville N.F.
22	Kaniksu N.F.
23	Colville I.R.
25	Quinault I.R.
26	Spokane I.R.
28	Yakima I.R.
34	Puget Sound
35	Northeast Washington
36	Northwest Washington
38	Southwest Washington
39	Glenwood
53	Mt. Rainier N.P.
54	Olympic N.P.
55	North Cascades N.P.
61	Glacier Peak Wilderness
62	Goat Rocks Wilderness
64	Mt. Adams Wilderness
69	Pasayten Wilderness
99	Makah I.R.

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Insect and Disease Control Branch
Division of Timber Management